**CHROMIUM STATISTICS[1]**
**U.S. GEOLOGICAL SURVEY**
**[All values in metric tons (t) chromium content unless otherwise noted]**
**Last modification: December 20, 2011**

| Year | Primary production | Secondary production | Imports | Exports | Industry stocks | Government stocks | Reported chromite ore consumption | Reported chromium ferroalloy and metal consumption | Apparent consumption | Unit value ($/t) | Unit value (98$/t) | World production |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1900 | 44 | NA | 5,540 | NA | NA | NA | NA | NA | 5,580 | 56 | 1,090 | 16,500 |
| 1901 | 116 | NA | 6,390 | NA | NA | NA | NA | NA | 6,510 | 59 | 1,160 | 27,900 |
| 1902 | 99 | NA | 12,500 | NA | NA | NA | NA | NA | 12,600 | 47 | 882 | 26,400 |
| 1903 | 47 | NA | 7,230 | NA | NA | NA | NA | NA | 7,280 | 42 | 765 | 29,500 |
| 1904 | 39 | NA | 7,640 | NA | NA | NA | NA | NA | 7,680 | 46 | 836 | 36,600 |
| 1905 | 7 | NA | 17,100 | NA | NA | NA | NA | NA | 17,100 | 43 | 769 | 44,500 |
| 1906 | 34 | NA | 13,700 | NA | NA | NA | NA | NA | 13,700 | 41 | 738 | 49,700 |
| 1907 | 91 | NA | 13,200 | NA | NA | NA | NA | NA | 13,300 | 37 | 652 | 34,700 |
| 1908 | 113 | NA | 8,800 | NA | NA | NA | NA | NA | 8,910 | 40 | 731 | 20,700 |
| 1909 | 188 | NA | 12,500 | NA | NA | NA | NA | NA | 12,700 | 38 | 685 | 33,300 |
| 1910 | 64 | NA | 12,200 | NA | NA | NA | NA | NA | 12,300 | 35 | 608 | 33,600 |
| 1911 | 38 | NA | 12,000 | NA | NA | NA | NA | NA | 12,000 | 35 | 603 | 25,100 |
| 1912 | 63 | NA | 17,300 | NA | NA | NA | NA | NA | 17,400 | 30 | 498 | 38,000 |
| 1913 | 80 | NA | 20,700 | NA | NA | NA | NA | NA | 20,800 | 30 | 501 | 45,500 |
| 1914 | 186 | NA | 25,500 | NA | NA | NA | NA | NA | 25,700 | 28 | 449 | 48,500 |
| 1915 | 1,030 | NA | 24,100 | NA | NA | NA | NA | NA | 25,100 | 33 | 526 | 57,400 |
| 1916 | 14,800 | NA | 36,500 | NA | NA | NA | NA | NA | 51,300 | 44 | 660 | 87,000 |
| 1917 | 13,800 | NA | 22,700 | NA | NA | NA | NA | NA | 36,400 | 59 | 750 | 81,300 |
| 1918 | 25,900 | NA | 31,500 | NA | NA | NA | NA | NA | 57,400 | 118 | 1,280 | 96,500 |
| 1919 | 1,600 | NA | 19,600 | NA | NA | NA | NA | NA | 21,200 | 72 | 680 | 52,900 |
| 1920 | 787 | NA | 48,500 | NA | NA | NA | NA | NA | 49,300 | 41 | 333 | 53,200 |
| 1921 | 89 | NA | 26,100 | NA | NA | NA | NA | NA | 26,200 | 25 | 232 | 41,400 |
| 1922 | 112 | NA | 28,600 | NA | NA | NA | NA | NA | 28,700 | 26 | 255 | 43,300 |
| 1923 | 71 | NA | 40,700 | NA | NA | NA | NA | NA | 40,800 | 28 | 265 | 63,500 |
| 1924 | 91 | NA | 37,600 | NA | NA | NA | NA | NA | 37,600 | 29 | 280 | 90,200 |
| 1925 | 34 | NA | 47,600 | NA | NA | NA | NA | NA | 47,600 | 26 | 239 | 95,300 |
| 1926 | 44 | NA | 68,100 | NA | NA | NA | NA | NA | 68,200 | 25 | 232 | 112,000 |
| 1927 | 63 | NA | 70,000 | NA | NA | NA | NA | NA | 70,100 | 25 | 235 | 124,000 |
| 1928 | 208 | NA | 68,600 | 1,380 | NA | NA | NA | NA | 67,500 | 25 | 240 | 140,000 |
| 1929 | 85 | NA | 101,000 | 927 | NA | NA | NA | NA | 99,700 | 27 | 255 | 197,000 |
| 1930 | 25 | NA | 103,000 | 781 | NA | NA | NA | NA | 102,000 | 34 | 334 | 173,000 |
| 1931 | 90 | NA | 71,500 | 698 | NA | NA | NA | NA | 70,900 | 46 | 498 | 127,000 |
| 1932 | 53 | NA | 30,600 | 978 | NA | NA | NA | NA | 29,700 | 53 | 635 | 101,000 |
| 1933 | 257 | NA | 35,800 | NA | NA | NA | NA | NA | 36,000 | 40 | 503 | 123,000 |

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**U.S. GEOLOGICAL SURVEY**
**[All values in metric tons (t) chromium content unless otherwise noted]**
**Last modification: December 20, 2011**

| Year | Primary production | Secondary production | Imports | Exports | Industry stocks | Government stocks | Reported chromite ore consumption | Reported chromium ferroalloy and metal consumption | Apparent consumption | Unit value ($/t) | Unit value (98$/t) | World production |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1934 | 111 | NA | 57,800 | NA | NA | NA | NA | NA | 57,900 | 39 | 480 | 183,000 |
| 1935 | 161 | NA | 80,900 | NA | NA | NA | NA | NA | 81,100 | 45 | 530 | 241,000 |
| 1936 | 81 | NA | 98,300 | NA | NA | NA | NA | NA | 98,400 | 45 | 529 | 317,000 |
| 1937 | 720 | NA | 172,000 | NA | NA | NA | NA | NA | 173,000 | 43 | 482 | 392,000 |
| 1938 | 262 | NA | 114,000 | NA | NA | NA | NA | NA | 114,000 | 43 | 494 | 362,000 |
| 1939 | 1,070 | NA | 93,900 | NA | NA | NA | NA | NA | 95,000 | 41 | 477 | 347,000 |
| 1940 | 849 | NA | 210,000 | NA | NA | 16,600 | 157,000 | NA | 211,000 | 42 | 486 | 457,000 |
| 1941 | 3,960 | NA | 310,000 | 530 | NA | 20,800 | 220,000 | NA | 309,000 | 41 | 455 | 509,000 |
| 1942 | 32,100 | NA | 279,000 | 1,350 | NA | 83,000 | 239,000 | NA | 248,000 | 56 | 562 | 637,000 |
| 1943 | 43,300 | NA | 251,000 | 8,390 | NA | 90,900 | 262,000 | NA | 278,000 | 65 | 617 | 542,000 |
| 1944 | 12,200 | NA | 227,000 | 596 | NA | 719,000 | 232,000 | NA | 231,000 | 70 | 651 | 411,000 |
| 1945 | 3,800 | NA | 253,000 | 4,190 | NA | 721,000 | 220,000 | 79,300 | 251,000 | 70 | 634 | 318,000 |
| 1946 | 1,120 | NA | 207,000 | 1,980 | 87,700 | 758,000 | 197,000 | 67,300 | 169,000 | 52 | 434 | 352,000 |
| 1947 | 259 | NA | 308,000 | 2,990 | 105,000 | 852,000 | 213,000 | 62,300 | 194,000 | 64 | 466 | 521,000 |
| 1948 | 992 | NA | 427,000 | 4,850 | 160,000 | 945,000 | 232,000 | 67,400 | 275,000 | 76 | 513 | 644,000 |
| 1949 | 119 | NA | 334,000 | 2,190 | 194,000 | 1,040,000 | 172,000 | 48,200 | 204,000 | 76 | 522 | 650,000 |
| 1950 | 112 | NA | 374,000 | 904 | 160,000 | 1,130,000 | 258,000 | 81,200 | 314,000 | 74 | 503 | 720,000 |
| 1951 | 1,870 | NA | 394,000 | 907 | 169,000 | 1,220,000 | 321,000 | 107,000 | 293,000 | 80 | 501 | 823,000 |
| 1952 | 5,540 | NA | 456,000 | 1,240 | 196,000 | 1,320,000 | 308,000 | 142,000 | 339,000 | 94 | 580 | 963,000 |
| 1953 | 15,500 | NA | 604,000 | 785 | 269,000 | 1,410,000 | 354,000 | 156,000 | 452,000 | 110 | 669 | 1,130,000 |
| 1954 | 41,900 | NA | 387,000 | 3,130 | 334,000 | 1,500,000 | 241,000 | 114,000 | 268,000 | 85 | 516 | 924,000 |
| 1955 | 39,700 | NA | 493,000 | 5,150 | 296,000 | 1,600,000 | 423,000 | 165,000 | 472,000 | 86 | 523 | 1,040,000 |
| 1956 | 54,500 | NA | 595,000 | 5,790 | 362,000 | 1,690,000 | 499,000 | 162,000 | 515,000 | 96 | 577 | 1,200,000 |
| 1957 | 44,400 | NA | 640,000 | 1,630 | 481,000 | 1,780,000 | 480,000 | 132,000 | 470,000 | 112 | 652 | 1,370,000 |
| 1958 | 38,500 | NA | 356,000 | 1,830 | 453,000 | 1,880,000 | 332,000 | 106,000 | 327,000 | 112 | 631 | 1,130,000 |
| 1959 | 27,900 | NA | 475,000 | 8,710 | 529,000 | 1,970,000 | 359,000 | 153,000 | 325,000 | 135 | 756 | 1,150,000 |
| 1960 | 27,400 | NA | 387,000 | 13,300 | 532,000 | 2,060,000 | 323,000 | 137,000 | 311,000 | 86 | 476 | 1,250,000 |
| 1961 | 21,700 | NA | 369,000 | 8,420 | 492,000 | 2,160,000 | 317,000 | 147,000 | 329,000 | 70 | 379 | 1,220,000 |
| 1962 | 0 | 99,300 | 405,000 | 4,370 | 527,000 | 2,220,000 | 300,000 | 150,000 | 402,000 | 125 | 673 | 1,280,000 |
| 1963 | 0 | 110,000 | 396,000 | 6,000 | 508,000 | 2,250,000 | 323,000 | 169,000 | 488,000 | 116 | 619 | 1,170,000 |
| 1964 | 0 | 129,000 | 419,000 | 4,360 | 388,000 | 2,270,000 | 396,000 | 208,000 | 650,000 | 124 | 652 | 1,290,000 |
| 1965 | 0 | 130,000 | 466,000 | 3,450 | 361,000 | 2,210,000 | 434,000 | 221,000 | 893,000 | 130 | 670 | 1,490,000 |
| 1966 | 0 | 149,000 | 590,000 | 10,400 | 405,000 | 2,190,000 | 404,000 | 233,000 | 708,000 | 121 | 609 | 1,360,000 |
| 1967 | 0 | 133,000 | 390,000 | 10,700 | 397,000 | 2,170,000 | 383,000 | 202,000 | 547,000 | 132 | 644 | 1,430,000 |

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**Last modification: December 20, 2011**

| Year | Primary production | Secondary production | Imports | Exports | Industry stocks | Government stocks | Reported chromite ore consumption | Reported chromium ferroalloy and metal consumption | Apparent consumption | Unit value ($/t) | Unit value (98$/t) | World production |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1968 | 0 | 135,000 | 352,000 | 20,100 | 321,000 | 2,130,000 | 371,000 | 208,000 | 577,000 | 138 | 645 | 1,560,000 |
| 1969 | 0 | 183,000 | 351,000 | 29,100 | 266,000 | 2,080,000 | 398,000 | 218,000 | 619,000 | 138 | 614 | 1,670,000 |
| 1970 | 0 | 147,000 | 427,000 | 29,000 | 267,000 | 2,030,000 | 394,000 | 194,000 | 593,000 | 128 | 538 | 1,910,000 |
| 1971 | 0 | 149,000 | 420,000 | 16,000 | 382,000 | 1,960,000 | 308,000 | 180,000 | 505,000 | 188 | 755 | 2,000,000 |
| 1972 | 0 | 149,000 | 399,000 | 14,300 | 341,000 | 1,910,000 | 320,000 | 217,000 | 623,000 | 197 | 767 | 1,970,000 |
| 1973 | 0 | 166,000 | 359,000 | 18,300 | 226,000 | 1,840,000 | 389,000 | 286,000 | 694,000 | 211 | 774 | 2,030,000 |
| 1974 | 0 | 206,000 | 397,000 | 13,300 | 195,000 | 1,710,000 | 398,000 | 327,000 | 747,000 | 321 | 1,060 | 2,230,000 |
| 1975 | 0 | 121,000 | 530,000 | 49,800 | 367,000 | 1,610,000 | 232,000 | 183,000 | 535,000 | 587 | 1,780 | 2,530,000 |
| 1976 | 0 | 168,000 | 475,000 | 44,600 | 398,000 | 1,530,000 | 262,000 | 225,000 | 642,000 | 503 | 1,440 | 2,430,000 |
| 1977 | 0 | 168,000 | 460,000 | 59,000 | 461,000 | 1,390,000 | 254,000 | 244,000 | 651,000 | 498 | 1,340 | 2,600,000 |
| 1978 | 0 | 165,000 | 426,000 | 24,300 | 412,000 | 1,390,000 | 250,000 | 270,000 | 617,000 | 460 | 1,150 | 2,990,000 |
| 1979 | 0 | 186,000 | 384,000 | 25,600 | 314,000 | 1,390,000 | 295,000 | 294,000 | 644,000 | 586 | 1,310 | 2,590,000 |
| 1980 | 0 | 154,000 | 421,000 | 29,900 | 212,000 | 1,290,000 | 233,000 | 229,000 | 727,000 | 638 | 1,260 | 2,830,000 |
| 1981 | 0 | 157,000 | 463,000 | 33,200 | 228,000 | 1,290,000 | 209,000 | 230,000 | 570,000 | 708 | 1,270 | 2,550,000 |
| 1982 | 0 | 121,000 | 214,000 | 11,300 | 177,000 | 1,290,000 | 135,000 | 143,000 | 374,000 | 678 | 1,150 | 2,390,000 |
| 1983 | 0 | 155,000 | 211,000 | 12,000 | 154,000 | 1,290,000 | 83,400 | 208,000 | 377,000 | 649 | 1,060 | 2,540,000 |
| 1984 | 0 | 163,000 | 323,000 | 34,400 | 111,000 | 1,250,000 | 136,000 | 210,000 | 527,000 | 724 | 1,140 | 2,950,000 |
| 1985 | 0 | 164,000 | 304,000 | 40,200 | 102,000 | 1,260,000 | 143,000 | 188,000 | 433,000 | 763 | 1,160 | 3,180,000 |
| 1986 | 0 | 161,000 | 363,000 | 38,700 | 97,900 | 1,270,000 | 107,000 | 191,000 | 474,000 | 680 | 1,010 | 3,530,000 |
| 1987 | 0 | 178,000 | 322,000 | 10,600 | 107,000 | 1,240,000 | 141,000 | 231,000 | 512,000 | 658 | 944 | 3,450,000 |
| 1988 | 0 | 213,000 | 449,000 | 15,500 | 132,000 | 1,220,000 | 160,000 | 243,000 | 649,000 | 1,050 | 1,440 | 3,870,000 |
| 1989 | 0 | 176,000 | 380,000 | 27,200 | 135,000 | 1,260,000 | 163,000 | 214,000 | 486,000 | 1,240 | 1,630 | 4,320,000 |
| 1990 | 0 | 185,000 | 346,000 | 16,300 | 121,000 | 1,270,000 | 120,000 | 226,000 | 515,000 | 892 | 1,110 | 3,950,000 |
| 1991 | 0 | 175,000 | 310,000 | 18,200 | 115,000 | 1,250,000 | 115,000 | 208,000 | 491,000 | 900 | 1,080 | 4,060,000 |
| 1992 | 0 | 187,000 | 324,000 | 17,900 | 115,000 | 1,280,000 | 116,000 | 218,000 | 462,000 | 878 | 1,020 | 3,420,000 |
| 1993 | 0 | 171,000 | 330,000 | 20,900 | 100,000 | 1,210,000 | 109,000 | 218,000 | 564,000 | 689 | 777 | 3,080,000 |
| 1994 | 0 | 170,000 | 273,000 | 33,200 | 98,800 | 1,170,000 | 104,000 | 206,000 | 460,000 | 694 | 764 | 3,090,000 |
| 1995 | 0 | 189,000 | 415,000 | 26,700 | 77,000 | 1,120,000 | 105,000 | 193,000 | 643,000 | 1,210 | 1,300 | 4,530,000 |
| 1996 | 0 | 177,000 | 362,000 | 51,000 | 72,400 | 1,070,000 | 87,200 | 190,000 | 545,000 | 934 | 970 | 3,660,000 |
| 1997 | 0 | 194,000 | 350,000 | 30,300 | 69,500 | 1,020,000 | 108,000 | 225,000 | 563,000 | 1,020 | 1,040 | 4,330,000 |
| 1998 | 0 | 177,000 | 384,000 | 62,400 | 57,100 | 929,000 | 83,600 | 192,000 | 597,000 | 909 | 909 | 4,460,000 |
| 1999 | 0 | 193,000 | 476,000 | 60,300 | 52,500 | 910,000 | NA | 217,000 | 632,000 | 709 | 694 | 4,810,000 |
| 2000 | 0 | 207,000 | 453,000 | 86,300 | 13,600 | 825,000 | NA | 220,000 | 657,000 | 761 | 721 | 4,750,000 |
| 2001 | 0 | 141,000 | 239,000 | 43,000 | 16,700 | 816,000 | NA | 208,000 | 344,000 | 854 | 786 | 3,740,000 |

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**Last modification: December 20, 2011**

| Year | Primary production | Secondary production | Imports | Exports | Industry stocks | Government stocks | Reported chromite ore consumption | Reported chromium ferroalloy and metal consumption | Apparent consumption | Unit value ($/t) | Unit value (98$/t) | World production |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2002 | 0 | 219,000 | 405,000 | 134,000 | 8,390 | 643,000 | NA | 241,000 | 670,000 | 790 | 716 | 4,510,000 |
| 2003 | 0 | 180,000 | 441,000 | 188,000 | 9,870 | 560,000 | NA | 245,000 | 514,000 | 922 | 817 | 4,770,000 |
| 2004 | 0 | 177,000 | 489,000 | 171,000 | 7,900 | 466,000 | NA | 268,000 | 591,000 | 1,380 | 1,190 | 5,010,000 |
| 2005 | 0 | 174,000 | 503,000 | 220,000 | 8,520 | 375,000 | NA | 257,000 | 548,000 | 1,510 | 1,260 | 5,920,000 |
| 2006 | 0 | 179,000 | 520,000 | 212,000 | 9,620 | 272,000 | NA | 255,000 | 589,000 | 1,410 | 1,180 | 6,080,000 |
| 2007 | 0 | 162,000 | 485,000 | 291,000 | 9,940 | 115,000 | NA | 277,000 | 493,000 | 2,010 | 1,620 | 7,030,000 |
| 2008 | 0 | 146,000 | 559,000 | 287,000 | 7,290 | 105,000 | NA | 256,000 | 432,000 | 3,490 | 2,740 | 7,390,000 |
| 2009 | 0 | 141,000 | 273,000 | 280,000 | 6,820 | 129,000 | NA | 228,000 | 160,000 | 2,030 | 1,540 | 6,000,000 |
| 2010 | 0 | 144,000 | 499,000 | 274,000 | 7,300 | 115,000 | NA | 252,000 | 383,000 | 2,650 | 2,010 | 7,290,000 |

NA Not available.

[1]Compiled by T.G. Goonan and J.F. Papp.

Data are calculated, estimated, or reported. See notes for more information.

## Chromium Worksheet Notes

**Data Sources**
The sources of data for the chromium worksheet are the mineral statistics publications of the U.S. Bureau of Mines and the U.S. Geological Survey—Minerals Yearbook (MYB) and its predecessor, Mineral Resources of the United States (MR), and Mineral Commodity Summaries (MCS) and its predecessor, Commodity Data Summaries (CDS). The years of publication and corresponding years of data coverage are listed in the References section.

**Primary Production**
Primary production is an estimate of U.S. chromite ore mine production measured in contained chromium. U.S. chromite ore production has been intermittent. Production was last reported in 1961. Government purchase programs during World War I (1914–18), World War II (1939–45), and stockpile-building period (1951–61) associated with the Korean War (1950–52) and the Cold War (1945–91) were responsible for most production from U.S. chromite deposits. Chromite ore production was estimated from chromite ore shipments reported in gross weight. The grade of domestic chromite ore shipments was assumed to be the same as that of imports for the same year.

**Secondary Production**
Secondary production is an estimate of chromium supply from recycled materials measured in contained chromium. Secondary chromium production was estimated from stainless steel scrap receipts reported in gross weight that were first reported in 1962. Stainless steel was not produced in large quantities until after World War II. The chromium content of stainless steel scrap was assumed to be 17 percent (Papp, 1991). The method of calculation of secondary production was changed in 2002 to account for scrap trade.

**Imports**
Imports are an estimate of the amount of chromite ore and value-added products—chromium chemicals, ferroalloys, and metal—imported into the United States measured in contained chromium. Imports reported here exclude steel mill and manufactured products that contain chromium-alloyed steel and steel scrap. Over the years, the United States has imported most of its chromium requirements, either as chromite ore, to be converted domestically into value-added products, or as the value-added products themselves. In most years, the chromic oxide content of chromite ore and the chromium content of value-added materials were reported. For those years for which contents were not reported, they were estimated based on those years in which they were reported. Stainless steel mill products and scrap were added to imports in 2002.

**Exports**
Exports are an estimate of the amount of chromite ore and value-added products exported from the United States measured in contained chromium. Exports of chromium-containing materials were not reported prior to 1941 in the sources referenced. Exports exclude steel mill and manufactured products that contain chromium-alloyed steel and steel scrap. The reported chromium content of chromium-containing export materials was used where it was available. Where it was not reported, an approximation of chromium content was made based on imports of a similar material. Stainless steel mill products and scrap were added to exports in 2002.

**Industry and Government Stocks**
Stocks are an estimate of the amount of industry and government chromium-containing material stocks reported at the end of each year and measured in contained chromium. Industry stocks were classified by industry and by material; government stocks, by material.

The appearance of stocks data for each year suggests a continuous series of information. Actually, overlapping data series for particular materials or material within an industry that start and stop contribute to one stocks series. Chromite ore consumer stocks contribute over the 1946–99 time period; however, chromite ore producer stocks were never reported. Chromium ferroalloy consumer stocks contribute from 1956 through the present and metal consumer stocks contribute from 1972 through the present. Chromium ferroalloy and metal producer stocks contribute over the 1956–97 time period.

U.S. Government stocks were first accounted for in a complete way in 1944 when those stocks included only chromite ore and high-carbon ferrochromium. There was a hiatus in reporting Government stocks from 1947–60 for chromite ore and from 1947–64 for high-carbon ferrochromium. High-carbon ferrochromium government stocks in 1945 and chromite ore stocks in 1946 appeared inconsistent with data that precede and follow them, and reported metallurgical and refractory grade chromite ore stocks appear to have been too large in 1962, so those data were replaced with interpolated values. Government stocks were not reported in 1966 and 1978. Low-carbon ferrochromium, ferrochromiumsilicon, and chromium metal stocks were first reported in 1965. For those time periods during which Government stocks could be interpolated, they were.

Because materials drop in and out of the material stock data series, computing stock change as current minus previous-year government plus industry stocks, or even government and industry stocks independently, can give misleading results in the sense that some of the change results from materials dropping in and out of the supporting data series. To avoid counting materials dropping in or out of a stocks data series as stock changes, stock changes were estimated by material for Government and industrial stocks, and

then accumulated. Since it takes 2 years to compute a stock change, the current and previous year, a stock change could be estimated starting in the second year of a data series.

**Reported Chromite Ore and Chromium Ferroalloy and Metal Consumption**
Reported consumption is an estimate of the amount of chromium contained in the industry-reported consumption of chromite ore and chromium ferroalloys and metal. Publication of industry-reported consumption of chromite ore began in 1940 and ended in 1998. Publication of industry-reported consumption of chromium ferroalloys and metal started in 1945 and continued through the present.

**Apparent Consumption**
Apparent consumption, as defined here, is the sum of production (i.e., primary (from mining) plus secondary (from recycling)), net imports (i.e., imports minus exports), and stock change (i.e., previous-year minus current-year) measured in contained chromium. Chromium apparent consumption is a national-scale accounting balance of chromium-containing materials that indicates national chromium consumption. Apparent consumption reported here is calculated from the primary production, secondary production, imports, and exports data series presented here; however, stock change is not computed from the stocks data presented here. (See the stocks section for an explanation of the estimation of stock change.)

Using general category names like production, imports, exports, and stocks, hides changes that occurred over the time period. As one goes back in time, certain of the variables that go into the calculation of apparent consumption drop out due to lack of reported data. For example, secondary production drops out in 1961; stock adjustments drop out in 1940; and exports drop out in 1940 through 1933 then dropped out again in 1927. Primary production drops in 1961. These changes can be seen in the chromium statistics table. There are more subtle changes that cannot be seen in the general category data series. Materials that constitute imports, exports, and stocks change over time. For example, chromite ore contributes to imports over the entire time period while chromium ferroalloy imports were not reported before 1911 and exports were not reported before 1913. In 1989, the Harmonized Tariff System was implemented causing changes in many of the trade material categories.

**Unit Value ($/t)**
Unit value for chromium is estimated annually based on the U.S. dollar (expressed as current dollars) value and chromium content of reported exports, imports, and production. Unit value is apparent consumption estimated in monetary units divided by apparent consumption estimated in mass units. Unit value is a mass-weighted average value computed as apparent consumption is computed. Values are based on trade. Secondary production value per unit of contained chromium is assumed to be the same as that of imported high-carbon ferrochromium.

**Unit Value (98$/t)**
The Consumer Price Index, with 1998 as the base year, is used to adjust unit value in current dollars to the unit value in constant 1998 dollars.

**World Production**
World production is an estimate of world chromite ore mine production measured in contained chromium. World production reported in gross weight was converted to contained chromium by assuming that its chromic oxide content was the same as that of chromite ore imported into the United States. Before content of chromite ore was reported, a time-averaged value was used.

**References**

Papp, J.F., 1991, Chromium, nickel, and other alloying elements in U.S.-produced stainless and heat-resisting steel: U.S. Bureau of Mines Information Circular 9275, 41 p.
U.S. Bureau of Mines, 1927–34, Mineral Resources of the United States, 1924–31.
U.S. Bureau of Mines, 1933–96, Minerals Yearbook, 1932–94.
U.S. Bureau of Mines, 1962–77, Commodity Data Summaries, 1962–77.
U.S. Bureau of Mines, 1978–95, Mineral Commodity Summaries, 1978–95.
U.S. Bureau of Mines, 1985, Mineral Facts and Problems, 1985 ed.
U.S. Bureau of Mines, 1993, Statistical compendium.
U.S. Geological Survey, 1901–27, Mineral Resources of the United States, 1900–23.
U.S. Geological Survey, 1995–present, Minerals Yearbook, v. I. (Available via http://minerals.usgs.gov/minerals.)
U.S. Geological Survey, 1997–most recent, Mineral Commodity Summaries 1997–most recent. (Available via http://minerals.usgs.gov/minerals.)
U.S. Geological Survey and U.S. Bureau of Mines, 1996, Mineral Commodity Summaries, 1996.


**Recommended Citation Format:**
U.S. Geological Survey, [year of last update, e.g., 2005], [Mineral commodity, e.g., Gold] statistics, *in* Kelly, T.D., and Matos, G.R., comps., Historical statistics for mineral and material commodities in the United States: U.S. Geological Survey Data Series 140, accessed [date], at http://pubs.usgs.gov/ds/2005/140/.

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